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OMICS Group International is an amalgamation of Open Access publications and worldwide international science conferences and events. Established in the year 2007 with the sole aim of making the information on Sciences and technology 'Open Access', OMICS Group publishes 400 online open access scholarly journals in all aspects of Science, Engineering, Management and Technology journals. OMICS Group has been instrumental in taking the knowledge on Science & technology to the doorsteps of ordinary men and women. Research Scholars, Students, Libraries, Educational Institutions, Research centers and the industry are main stakeholders that benefitted greatly from this knowledge dissemination. OMICS Group also organizes 300 International conferences annually across the globe, where knowledge transfer takes place through debates, round table discussions, poster presentations, workshops, symposia and exhibitions.

#### About OMICS Group Conferences

OMICS Group International is a pioneer and leading science event organizer, which publishes around 400 open access journals and conducts over 300 Medical, Clinical, Engineering, Life Sciences, Phrama scientific conferences all over the globe annually with the support of more than 1000 scientific associations and 30,000 editorial board members and 3.5 million followers to its credit.

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# Infiltration of Green Chemistry Concept in Chemistry Experiment Teaching

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Philadelphia, United States 25 to 27 August 2014

### **Green Chemistry**



Environmentally Benign Chemistry

Environmentally Friendly Chemistry

Clean Chemistry

# Why Do We Need Green Chemistry?

"It is better to prevent waste than to treat or clean up waste after it is formed"



# Green Chemistry Is About



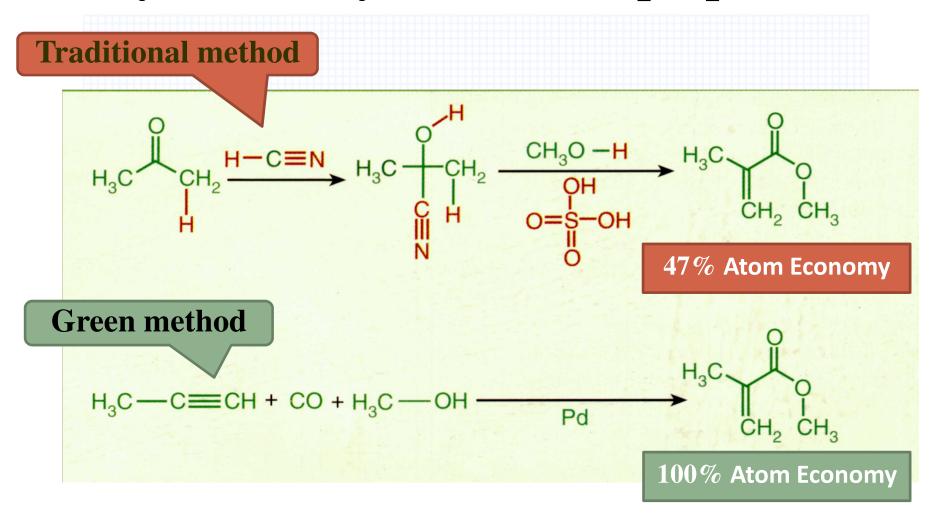
# Green Chemistry means...

#### Condensed Principles of Green Chemistry

- P Prevent wastes
- R Renewable materials
- Omit derivatization steps
- D Degradable chemical products
- U Use safe synthetic methods
- C Catalytic reagents
- T Temperature, Pressure ambient
- I In-Process Monitoring
- V Very few auxiliary substances
- E E-factor, maximise feed in product
- L Low toxicity of chemical products
- **Y -** Yes, it is safe

# **Zero** emission **Atom Economy** non-toxic Catalysis Environmentally Benign product Use renewable **Atom Economy** Recycling & Reuse Feedstock Safer Solvents and **Auxiliaries**

#### Methyl methacrylate (MMA) preparation



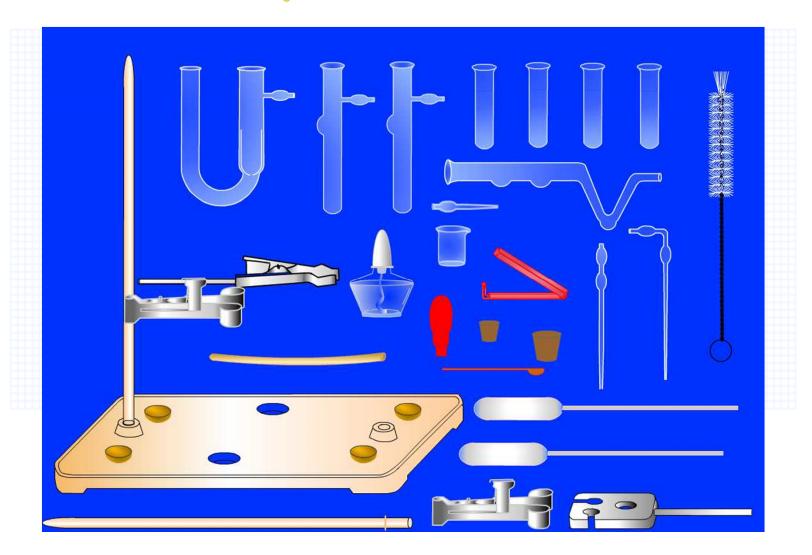
#### Microscope chemistry experiment

The core concept is "to obtain the required chemical information with reagent as little as possible."

The drugs and resources consumed is reduced by 90% compared to Traditional chemistry experiments



#### Microscope chemical instruments



#### **Green Chemistry Becomes Possible**















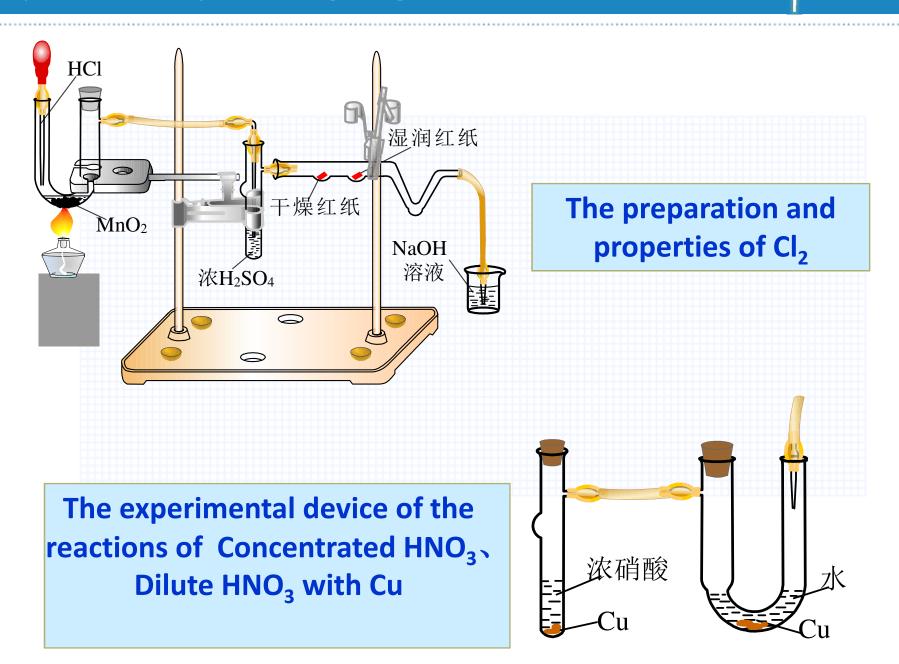


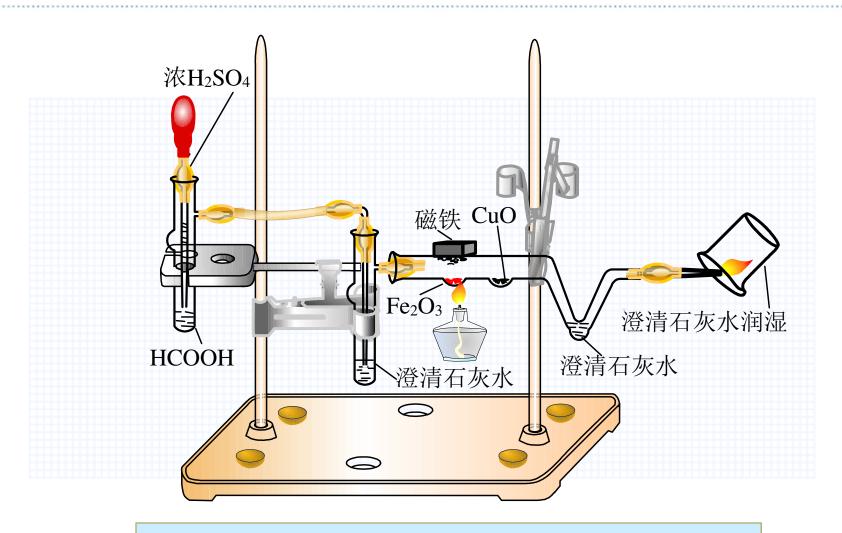




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The preparation and properties of CO

#### **Highlighting Innovative Practices**

miniaturization of experimental instruments

implement the smallest usage of experimental drugs

new ways and technology based on concept of green chemistry

shorten the experiment time

less reagent, lower cost, smaller risk, obvious phenomenon and higher interest

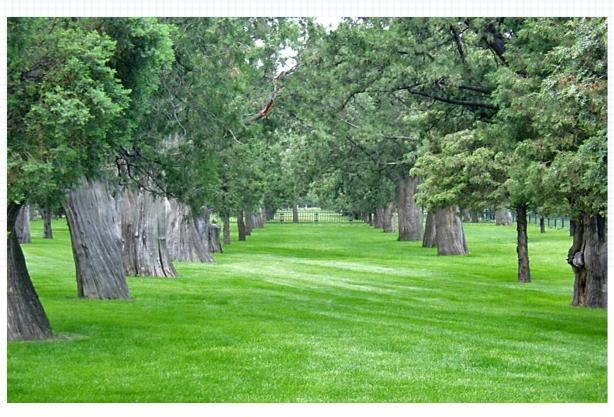
# **Computer Multimedia Simulation**

Department of Chemistry & Material Engineering LEU	Presentation

Powered by Sothink 模拟实验室 Sn(II)的氧化性 版权所有

# Nuclear Idea of Green Chemistry

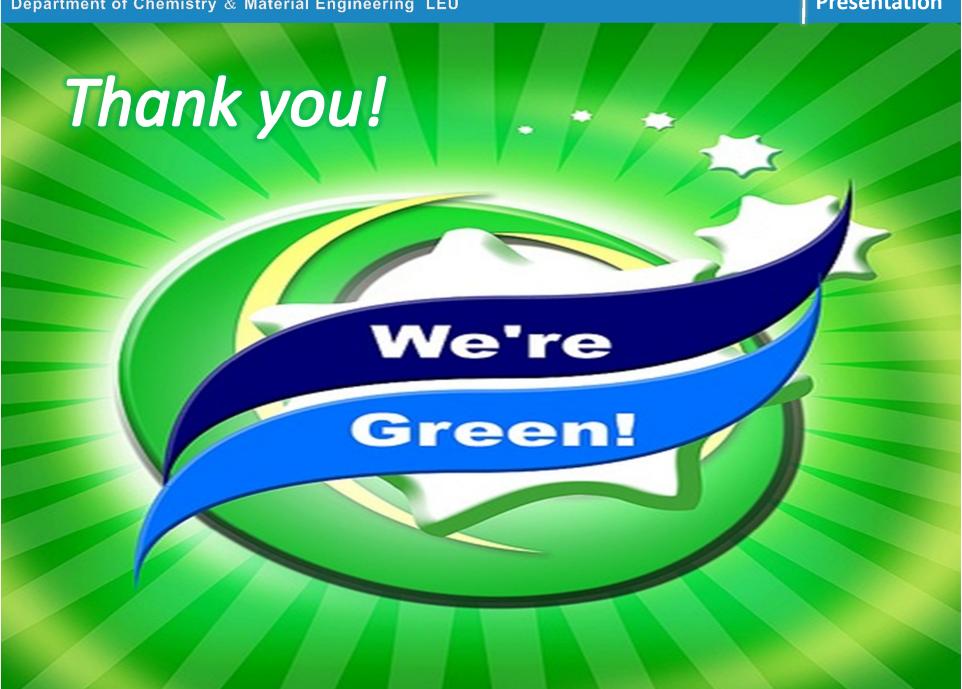
Preventing pollution before it happens rather than cleaning up the mess later.



#### **Green Chemistry**

- >Academic view——Innovation of the chemistry science
- **►** Environmental view——Waste minimisation at source
- ➤ Economic view——Reasonable use of resources and energy reduce the cost

—— Accordance with the requirement of the sustainable development of economy and society



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